SEMESTER END EXAMINATION, DECEMBER 2025

Course Name: - B. Tech
Paper Name: - Database Management System

Semester: - 3rd
Paper Code: -NAM 304

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer.
Max Marks-70
समय 3 घण्टे, 20 मिनट प्रति घंटे अतिरिक्त–दृष्टिबाधित एवं सह लेखक परीक्षार्थियों के लिए। अधिकतम अंक–70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 marks. All questions are compulsory.**
- Section B- Answer any **5 out of 7** given questions. Each question carries **7 marks.**
- Section C- Answer any **2 out of 3** given questions. Each question carries **10 marks.**

Section – A खण्ड–अ
Objective Questions(वस्तुनिष्ठ प्रश्न)

1. Answer all the following questions. **5x3 =15**
निम्नलिखित सभी प्रश्न अनिवार्य हैं।

1- Which join returns matching rows only?
a) Outer Join
b) Left Join
c) Right Join
d) Inner Join

2- DBMS provides data independence at:
a) Physical level only
b) Logical level only
c) Both physical and logical level
d) View level only

3- Commit makes changes:
a) Temporary
b) Permanent
c) Hidden
d) Reversible

4- Which normal form removes multivalued dependency?
a) 3NF

b) BCNF
c) 4NF
d) 5NF

5- Instance is:
a) Database design
b) Database structure
c) Snapshot of data
d) Query

Section – B खण्ड–ब
Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any five of the following questions. **5x7=35**
निम्नलिखित में से किन्हीं पाँच प्रश्नों के उत्तर दें।

1. Explain the database system architecture with a neat diagram. Discuss its advantages over the file system.
2. Discuss data abstraction and explain the levels of data abstraction with diagram.
3. Explain ER model and relational model in detail.
4. Explain different types of keys used in DBMS with suitable examples.
5. Explain the concept of lossless join and query optimization processing.
6. What is hashing, B tree in DBMS? Explain hashing and its components.
7. Define concurrency control. Explain various types of concurrency control techniques.

Section – C (खण्ड–स)
Descriptive Questions (विवरणात्मक प्रश्न)

3. Answer any two of the following question. **2x10=20**
निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर दें।

1. Describe serializability of scheduling. Also explain the concept of conflict serializability.
2. Explain data mining, data warehouse, and web database in detail.
3. Differentiate between 1NF, 2NF, and 3NF with suitable examples. Also explain the concept of BCNF.